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Number of objects and number of features influence the extent of age related differences in visual information processing

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Guest et al. (2015) used a time-accuracy-function (TAF) paradigm to estimate age related differences in the speed of visual information processing and found that this was reduced for older adults but only when multiple stimuli were present. However, this slowing may have been due to the number of objects, the number of relevant features or total amount of information in the displays. We disentangled these factors in two experiments that utilised the TAF procedure. In Experiment 1, four Gabor stimuli were always presented and participants were post-cued to report the orientation of one of these. Either 1,2 or 4 objects were pre-cued with minimal age related slowing of processing for set size 1, but age related differences observed for larger set sizes. Experiment 2 examined the extent to which processing rate was influenced by the number of objects or features to be reported. Two, two feature stimuli were always presented with pre-cues as to the relevant features/objects. Age related differences in processing rate were observed that indicated that that it was neither the number of objects nor the number of features per se, but the similarity between features to be encoded that caused age related slowing in processing rate.